Gulf Research Reports, Vol. 6, No. 1, 9–15

A CHECKLIST OF THE AHERMATYPIC SCLERACTINIA OF THE GULF OF MEXICO, WITH THE DESCRIPTION OF A NEW SPECIES

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ABSTRACT A brief chronology of discovery of the 54 ahermatypic Scleractinia known from the Gulf of Mexico is presented. Of this total, 6 are new records for the Gulf. A checklist is provided for all species indicating their Gulf distribution and their overall bathymetric range. One new species of *Pourtalosmilia* is described, which represents a new record for this genus in the western Atlantic.

INTRODUCTION

Ahermatypic Scleractinia from the Gulf and Caribbean were systematically collected aboard the U. S. Coast Survey Steamers "Corwin," "Bibb," and "Blake," and studied by Pourtalès between 1867–1880. Pourtalès (1867) reported the first ahermatypic corals from stations occupied by the "Corwin" in the Gulf off Havana, Cuba: *Caryophyllia berteriana* and *Enallopsammia profunda*. After more extensive dredging by the "Bibb," mainly off the Tortugas and Key West, Florida, Pourtalès (1871) reported an additional 13 species from these areas. Finally, as the result of 86 stations occupied by the "Blake," from localities north of the Yucatan Peninsula, off northwestern Cuba, and the west coast of Florida, he (Pourtalès 1878) added another 19 species to the Gulf fauna. "Blake" station 50 is discounted because of ambiguous locality data.

No additional species of ahermatypes were reported until Whitten, Rosen and Hedgpeth (1950) listed *Astrangia astreiformis* from the Texas coast in a preliminary survey of that area.

Moore and Bullis (1960) were the first to report *Lophelia prolifera* from the Gulf about 65 km east of the mouth of the Mississippi River. They estimated that this species formed banks over a kilometer long and 55 m thick at depths of 371–512 m.

In their listing of benthic invertebrates of the eastern Gulf of Mexico, Collard and D'Asaro (1973) listed five more species for the Gulf fauna based on implied records found in Vaughan and Wells (1943). D'Asaro (pers. comm.), however, collected only two of these species from the Gulf: *Astrangia solitaria* and *Phyllangia americana*. Both Tresslar (1974) and Keller (1975) recorded ahermatypes from the Gulf but did not establish new records.

In his unpublished dissertation, Cairns (1976, appendix II) listed 21 species of deep-water ahermatypes from the Gulf of Mexico, four of which were new records for the Gulf. Based on additional material collected by the Florida Department of Natural Resources in Project "Hourglass," Cairns (1977) listed 36 ahermatypic species from the Gulf, six of which were new records for the Gulf. This paper lists six additional ahermatypic species, increasing the total number of ahermatypes known from the Gulf to 54.

MATERIAL AND METHODS

The data that form the basis of the checklist were obtained from the literature cited in the introduction. Unfortunately, Pourtalès rarely indicated the station number at which a specimen was collected. It is therefore necessary to consult a detailed station list (Smith 1889) and see the original material to compensate for junior synonyms, misidentifications and split lots. The distribution and identification of every species were verified by the author, either from the original material or from subsequently collected specimens. The specimens on which the new records are based were among approximately 500 specimens on loan from Dr. Linda H. Pequegnat and Mr. Jack H. Thompson (Texas A&M University), and numerous specimens collected primarily by the "Oregon" and "Silver Bay" in the NMNH collections.

The southeastern limits of the Gulf of Mexico are defined as the line connecting Key West, Florida to the closest point of the Cuban coast (approximately 81°48′W) and the shortest line between western Cuba and northeastern Yucatan, Mexico. Species occurring primarily outside of the Gulf of Mexico but which have been collected from the western Straits of Florida at the edge of their ranges are not included in the checklist. These species are *Fungiacyathus symmetricus, Anthemiphyllia patera, Caryophyllia antillarum, Deltocyathus agassizi, Trochocyathus recurvatus, Trochocyathus cylindraceus, Desmophyllum cristagalli, Thalamophyllia riisei, Peponocyathus folliculus, "Rhizotrochus" tulipa, Gardineria minor, "Ceratotrochus" hispidus, Balanophyllia cyathoides,* and *Enallopsammia rostrata.*

The Gulf is further subdivided into six areas (Figure 1)

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to facilitate geographic categorization: (1) from the Florida Keys to Apalachee Bay, Florida; (2) from Apalachee Bay to the Mississippi River Delta; (3) from the Delta to the Texas-Mexico border; (4) from that border to the Tabasco-Campeche, Mexico border; (5) the Campeche Bank; and (6) the Yucatan Channel and off northwestern Cuba to 81°48′W.

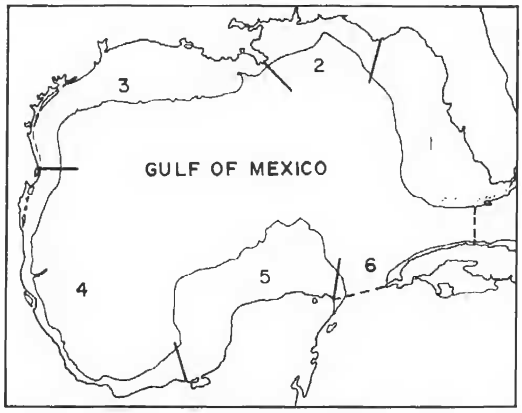

Figure 1. Map of the Gulf of Mexico showing the six geographic subdivisions used in this paper. The 100 fm contour is included.

CHECKLIST

Distributional records (Table 1) are those for the Gulf of Mexico only; however, depth ranges provided are for the species throughout its range. Descriptions, photographs, and complete geographic ranges for most of these species are in Cairns (1976). An asterisk (*) denotes a new record for the Gulf of Mexico. The number one in parentheses (1) indicates that this species is known from only one Gulf record. This list is far from comprehensive, since little collecting has been done in areas 4 and 6. Inevitably more ahermatypic species will be discovered in the Gulf and distributional gaps will be filled in.

TABLE 1.

Checklist and distributions of ahermatypic Scleractinia known from the Gulf of Mexico

	Geographic Area 1	2	3	4	5	6	Depth Range (meters)
Order: Scleractinia							
Suborder: Astrocoeniina							
Family: Pocilloporidae							
Madracis myriaster (Milne Edwards & Haime, 1849)	X	X	X			X	37 – 875
Madracis asperula Milne Edwards & Haime, 1849	X		X			X	24 – 200
Suborder: Fungiina							
Family: Fungiidae							
Fungiacyathus crispus (Pourtalès, 1871)	X	X					183 – 1010
Suborder: Faviina							
Family: Faviidae							
Cladocora debilis Milne Edwards & Haime, 1849	X					X	11 – 150
Family: Rhizangiidae							
Astrangia astreiformis Milne Edwards & Haime, 1849	X	X	X				10 – 29
Astrangia solitaria (Lesueur, 1817)	X	X					0.3 – 43
Phyllangia americana Milne Edwards & Haime, 1849	X	X					0.3 – 40
Family: Oculinidae							
Oculina tenella Pourtalès, 1871	X					X	67
Madrepora oculata Linnaeus, 1758			X	X		X	80 – 1500
Madrepora carolina (Pourtalès, 1871)	X	X	X			X	53 – 1003
Suborder: Caryophylliina							
Family: Caryophylliidae							
Caryophyllia sp. cf. *C. ambrosia* Alcock, 1898	X	X	X	X	X	X	183 – 2360
Caryophyllia cornuformis Pourtalès, 1868	X					X	137 – 931
Caryophyllia berteriana Duchassaing, 1850	X	X			X	X	100 – 850
Caryophyllia polygona Pourtalès, 1878					X	X	715 – 1817
Caryophyllia horologium Cairns, 1977	X		X				55 – 100

TABLE 1 – Continued

	Geographic Area 1	2	3	4	5	6	Depth Range (meters)
Caryophyllia maculata (Pourtalès, 1874)	X						3 – 161
**Oxysmilia rotundifolia* (Milne Edwards & Haime, 1849)			X			X	46 – 640
"Trochocyathus" flos (Pourtalès, 1878)		X				X	22 – 560
Trochocyathus rawsonii Pourtalès, 1874	X				X	X	131 – 622
Puracyathus pulchellus (Philippi, 1842)	X	X	X		X	X	25 – 838
"Thecocyathus" laevigatus Pourtalès, 1871	X					X	183 – 576
Deltocyathus italicus (Michelotti, 1838)	X	X		X		X	403 – 2634
Deltocyathus calcar Pourtalès, 1874	X	X			X	X	101 – 675
Deltocyathus hexagonus (Gravier, 1915)	X	X			X	X	183 – 910
**Stephanocyathus (S.) diadema* (Moseley, 1876)		X	X		X	X	795 – 2133
**Stephanocyathus (S.) paliferus* Cairns, 1977	X				X	X	229 – 1158
**Stephanocyathus (O.) coronatus* (Pourtalès, 1867)		X			X	X	543 – 1280
Turbinolia corbicula Pourtalès, 1878						X	400 – 576
Peponocyathus stimpsonii (Pourtalès, 1871)	X				X	X	110 – 293
Sphenotrochus sp.	X(1)						15
Lophelia prolifera (Pallas, 1766)		X				X	60 – 2170
Anomocora fecunda (Pourtalès, 1871)	X				X	X	73 – 567
Coenosmilia arbuscula Pourtalès, 1874	X				X	X	109 – 807
Dasmosmilia variegata (Pourtalès, 1871)	X						185 – 600
Dasmosmilia lymani (Pourtalès, 1871)		X				X	33 – 366
Solenosmilia variabilis Duncan, 1873						X	220 – 3383
Asterosmilia prolifera (Pourtalès, 1871)		X			X		32 – 311

TABLE 1 – Continued

	Geographic Area 1	2	3	4	5	6	Depth Range (meters)
**Pourtalosmilia conferta* n. sp.		X(1)					55 – 191
Family: Flabellidae							
Flabellum moseleyi Pourtalès, 1880	X	X				X	216 – 1097
Flabellum fragile Cairns, 1977	X				X		80 – 366
Javania cailleti (Duchassaing & Michelotti, 1864)	X	X			X	X	86 – 2165
"Rhizotrochus" fragilis Pourtalès, 1868	X				X	X	90 – 796
Gardineria simplex (Pourtalès, 1878)						X(1)	12 – 183
Family: Guyniidae							
Guynia annulata Duncan, 1872	X	X	X		X	X	3 – 653
Schizocyathus fissilis Pourtalès, 1874	X	X				X	88 – 640
Stenocyathus vermiformis (Pourtalès, 1868)	X					X	128 – 1229
Suborder: Dendrophylliina Family: Dendrophylliidae							
Balanophyllia floridana Pourtalès, 1868	X	X				X	37 – 183
Balanophyllia palifera Pourtalès, 1878						X	53 – 708
Dendrophyllia cornucopia Pourtalès, 1871	X					X	132 – 960
**Dendrophyllia alternata* Pourtalès, 1880			X				276 – 1200
Enallopsammia profunda (Pourtalès, 1867)	X					X	146 – 1748
Bathypsammia tintinnabulum (Pourtalès, 1868)	X					X	210 – 1079
"Rhizopsammia" manuelensis Chevalier, 1966		X	X				55 – 366
Trochopsammia infundibulum Pourtalès, 1878						X(1)	532 – 1472

SYSTEMATIC ACCOUNT

Order Scleractinia Bourne, 1900
Suborder Caryophylliina Vaughan and Wells, 1943
Family Caryophylliidae Gray, 1847
Subfamily Parasmiliinae Vaughan and Wells, 1943
Genus *Pourtalosmilia* Duncan, 1885

The genus *Pourtalosmilia*, previously considered to be a junior synonym of *Anomocora* Studer, 1878, was resurrected by Zibrowius (1976) for the eastern Atlantic *P. anthophyllites*. The following records are the first for this genus in the western Atlantic.

Pourtalosmilia conferta, n. sp.
(Plate 1, Figures 1–6)

Material Examined. USNM 46851, Holotype colony; USNM 46852, Paratypes, 2 large colonies and 5 pieces, R/V "Silver Bay" 5660, 34°57.5′N, 75°19.5′W, 119–173 m, 14 April 1964; USNM 46853, 6 Paratypes, M/V "Silver Bay" 332, 29°17′N, 88°16′W, 84 m, 24 March 1958; USNM 46854, 6 Paratypes, R/V "Gerda" 134, 24°29′N, 80°53′W, 191 m, 21 June 1963; USNM 46855, 1 Paratype, 79°58.0′N, 27°51.8′W, 83 m, (collected by W. Jaap); USNM 46856, 2 Paratypes, M/V "Albatross" III, 18 miles off Cape Lookout, North Carolina, 55 m, 12 February 1950; USNM 46857, 18 Paratypes (dead), "Chain" cruise 35, station 15, 0.5–0.7 miles east of St. Paul Rocks, Brazil, 291 m, 13 April 1963; USNM 46858, 10+ Paratypes, "Chain" cruise 35, station 16, 0.6–0.4 miles southeast of St. Paul Rocks, Brazil, 110–146 m, 13 April 1963; off Ilha Raza de Guaratiba, Brazil, near 23°05′N, 43°34′W, depth unknown, 17 July 1959, deposited at Station Marine d'Endoume, Marseille; south of Cape Hatteras, North Carolina, 35° 15.8′N, 76°02′W, 82–100 m (collected by I. Macintyre, No. 8234), deposited at Cornell University.

Description. This species forms large, densely-branched colonies that result primarily from extratentacular budding from the edge zone. However, intratentacular budding also occurs. The subcylindrical corallites may continue to grow even after budding several new corallites, and attain lengths up to 60 mm. Adjacent corallites often anastomose laterally, which produces a very compact corallum with small cavities throughout. These cavities often provide niches for various bivalves, bryozoa, and polychaetes. The largest colony examined measures 22 cm tall and 19 cm in diameter, weighing 1.5 kg (dry skeleton). Calices are round to elliptical; an average adult calice measures between 7.5–11.0 mm in diameter. The coenosteum is covered by uniform, fine, round granules that produce a smooth texture. Sometimes very faint intercostal striae are present near the calice, but in general, costae are not evident.

The septa are arranged in six systems and four cycles, rarely exceeding 48 in number. S_1 and S_2 are equal in size, slightly exsert and have straight, vertical inner edges that do not reach the columella. S_3 are slightly smaller and have wavy lower inner edges. S_4 are the smallest septa and have straight inner edges. In one particularly large calice (calicular diameter = 12.0 mm) there are 72 septa arranged in 18 half-systems instead of 13 pairs of smaller S_5 arranged within the first 12 half-systems. The septal granulation is variable, ranging from low, pointed spines to tall, blunt granules. The lower, inner edges of the S_3 often bear short carinae oriented perpendicular to the septal edge.

Large, prominent pali, usually forming a distinct crown, are arranged before the S_3. The fossa is fairly deep and contains a large fascicular columella composed of twisted ribbons, which may stand alone or be solidly fused to one another in a spongy mass. Widely spaced, endothecal dissepiments are abundant.

Discussion. *Pourtalosmilia conferta* is very similar to *P. anthophyllites* (Ellis and Solander, 1786) (Plate 1, Figure 7), which is known only from the eastern Atlantic (Zibrowius 1976). They are distinguished primarily on the basis of their pali. The pali of *P. anthophyllites* are often poorly defined or absent, not separated by a distinct notch from their septa, and sometimes identical in structure to the columellar elements, rarely forming a distinct palar crown. Those of *P. conferta* are usually well-defined, separated from their septa by a deep and narrow notch, always structurally distinct from the columella, and usually forming a distinct palar crown. Also, *P. conferta* usually has a complete fourth cycle of septa (48 septa) and sinuous inner edges to the S_3, whereas *P. anthophyllites* often has less than 48 septa (9–11 half-systems) and straight inner edges to the S_3.

Etymology. The specific name *conferta*, meaning crowded or thick, pertains to the densely-branched colonial habit of the species.

Type – Locality. Off Cape Hatteras, North Carolina: 34°57.5′N, 75°19.5′W, 119–173 m.

Geographic Distribution. Off Cape Hatteras; Florida east coast; Pourtalès Terrace, Straits of Florida; off Mississippi, Gulf of Mexico; St. Paul Rocks; off Rio de Janeiro, Brazil.

Bathymetric Range. 55–191 m.

ACKNOWLEDGMENTS

I wish to thank Dr. L. H. Pequegnat, Mr. J. H. Thompson, Jr. (Texas A&M University) and Mr. W. C. Jaap (Florida Department of Natural Resources) for contributing specimens used in this study. I am indebted to Dr. F. M. Bayer (USNM) for access to the National Museum collections. I would also like to thank Dr. H. Zibrowius (Station Marine d'Endoume, Marseille) for comparative material of *P. anthophyllites*.

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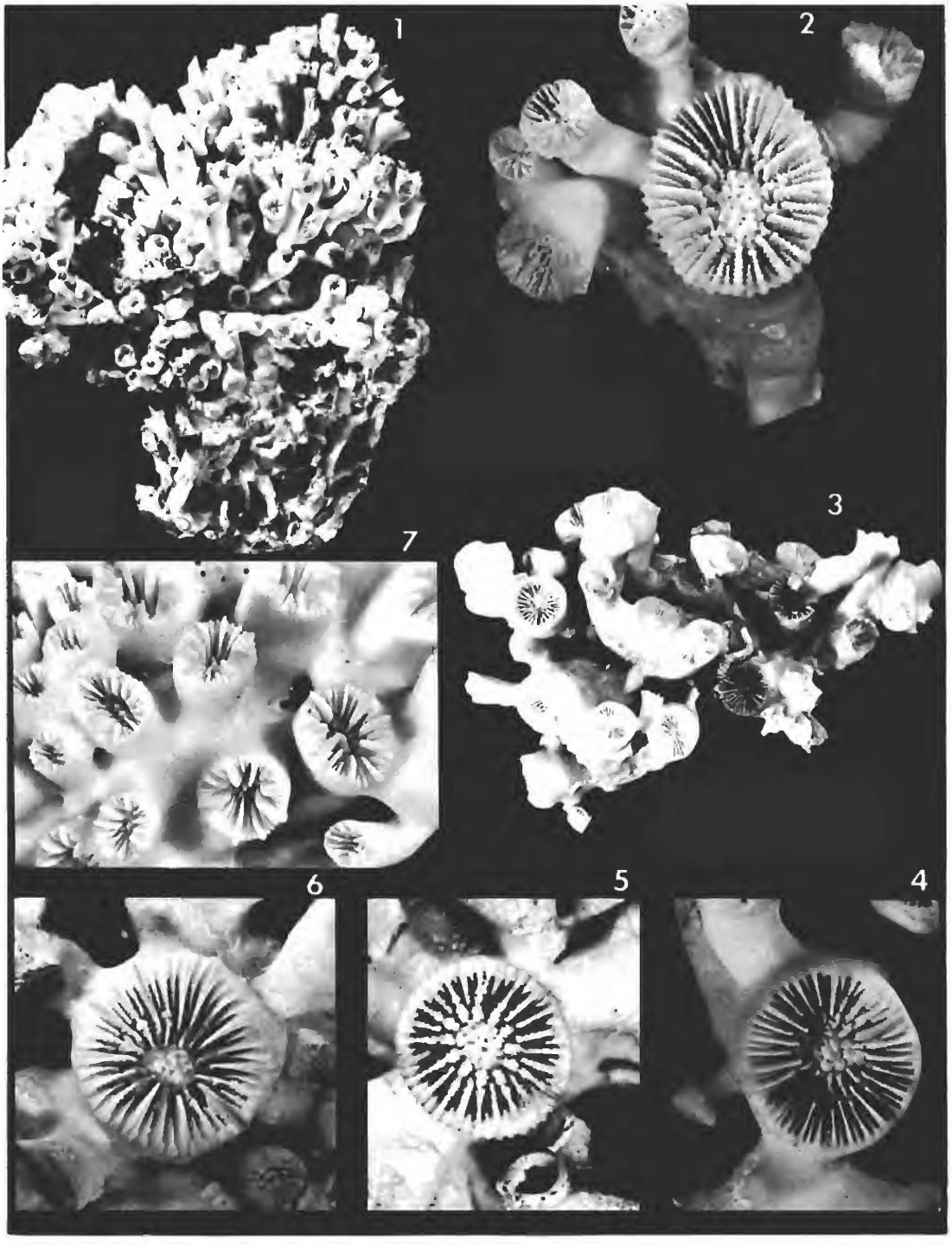
PLATE 1

CAPTIONS

1. *Pourtalosmilia conferta* (holotypic colony): "Silver Bay" 5660, X 0.5, USNM 46851.
2. *P. conferta* (paratype): off Cape Lookout, North Carolina, X 4.5, USNM 46856.
3. *P. conferta* (paratype): "Silver Bay" 332, X 0.9, USNM 46853.
4. *P. conferta* (paratype): "Silver Bay" 332, X 3.0, USNM 46853.
5. *P. conferta* (paratype): off eastern Florida, X 4.5, USNM 46855.
6. *P. conferta* (paratype): off Ilha Raza de Guaratiba, Brazil, X 2.7, deposited at Station Marine d'Endoume, Marseille.
7. *P. anthophyllites:* 38°16.8′N, 8°56.4′W, 250–300 m, X 4.0, deposited at Station Marine d'Endoume, Marseille.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